



Nutritional management of common symptoms related to HIV/AIDS

**Presentation to the
Enhancing Quality of Care Meeting**

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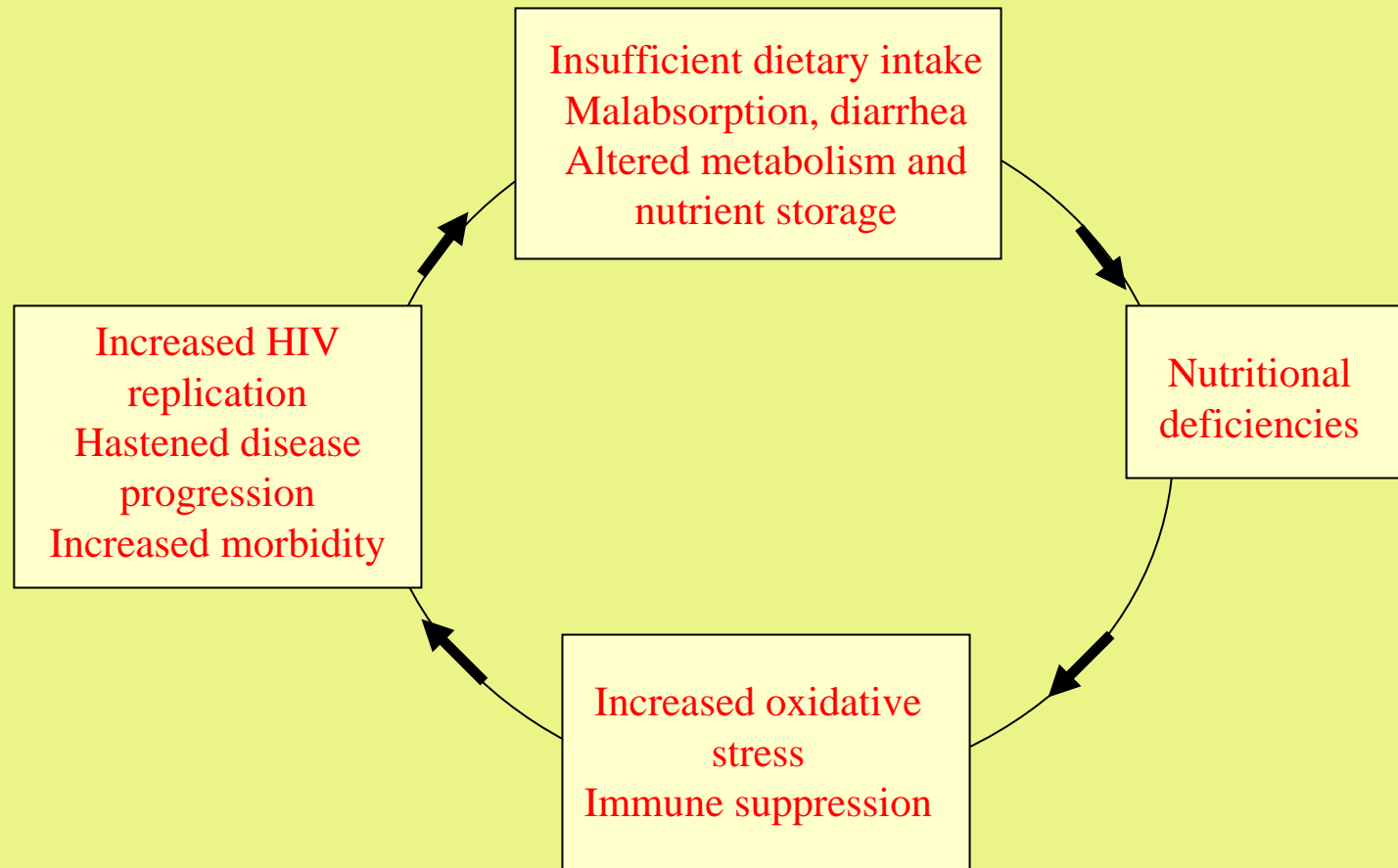
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Overview of the Presentation

- Background on nutrition and HIV
- Priority interventions for nutrition-related care and support
 - At different stages of disease progression
- Specific recommendations for symptom based nutritional management
- Nutrition and ARV therapy

Although sometimes controversial, particularly here in South Africa, the role of malnutrition in infection in general and with HIV, in particular, is well recognized



Source: Semba and Tang,
1999

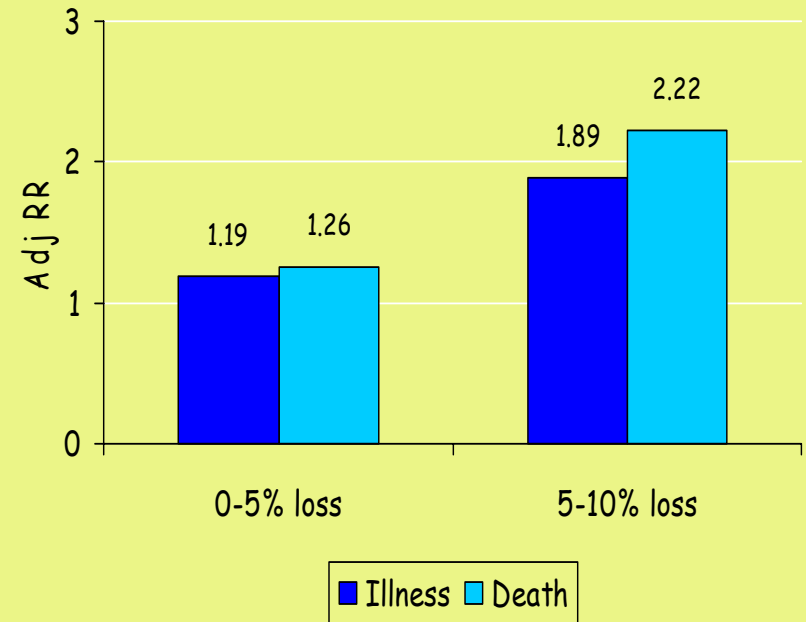
The effects of HIV on nutrition start early, during asymptomatic HIV infection, and continue as HIV progresses to AIDS

- Increased energy requirements (due to higher REE)
 - 10% increase in asymptomatic adults and up to 30% increase with secondary infections
 - 50-100% increase for young children
- Reductions in dietary intake
 - Due to appetite loss, depression, oral sores, food insecurity/loss of livelihoods
 - Low energy intake is the major driving force in weight loss/wasting
- Nutrient malabsorption and loss
 - HIV-infection of GI cells, diarrhea-related losses
 - Fat and CHO malabsorption
- Metabolic changes
 - Cytokine-related, impaired nutrient transport and storage

Low food intake is a primary cause of weight loss in HIV

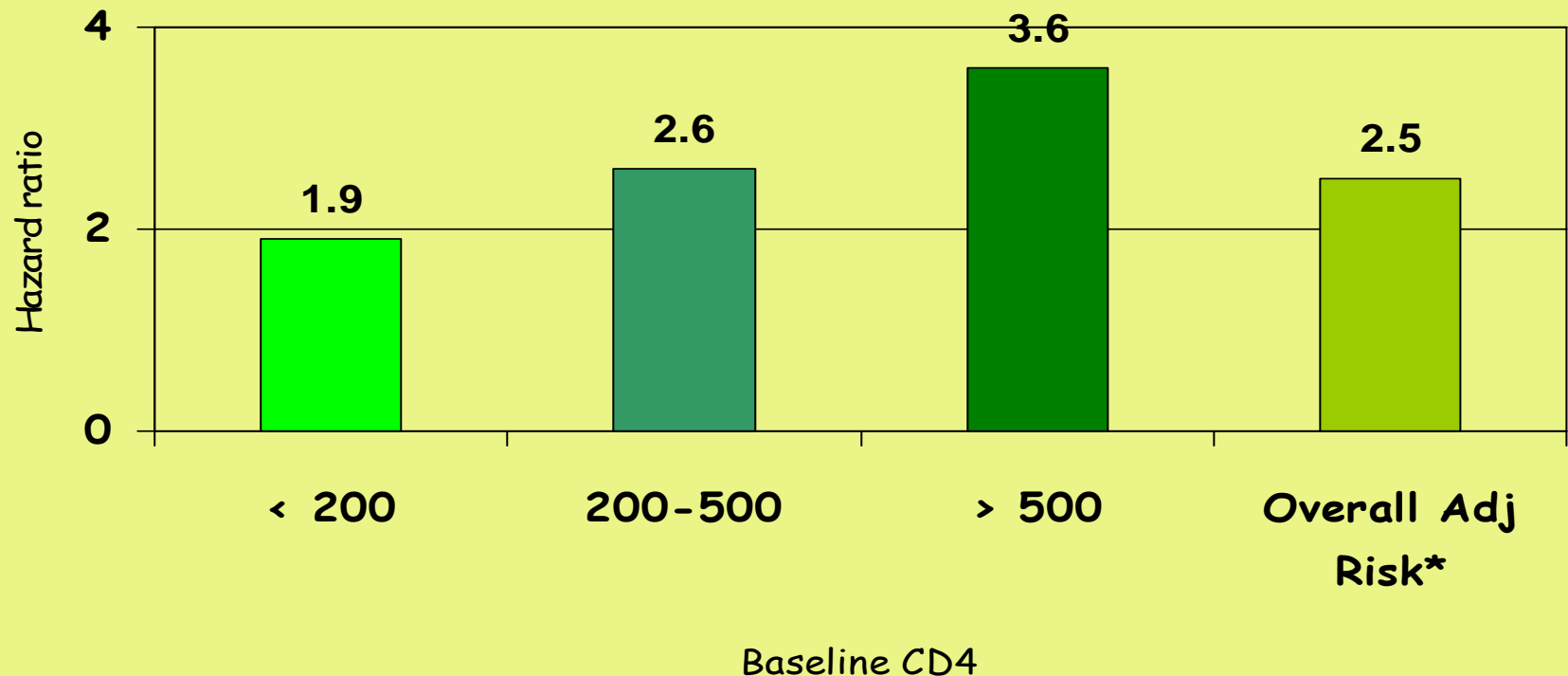
- Weight loss may be gradual or rapid as a result of secondary infections
 - TB, diarrhea
- In addition, weight loss and loss of lean body mass strongly predict risk of subsequent illness and death (graph)

Weight loss over a 4-month time interval
independently predicted illness and death in
US adults
Wheeler et al, JAIDS, 1998



P < 0.01 for all RR

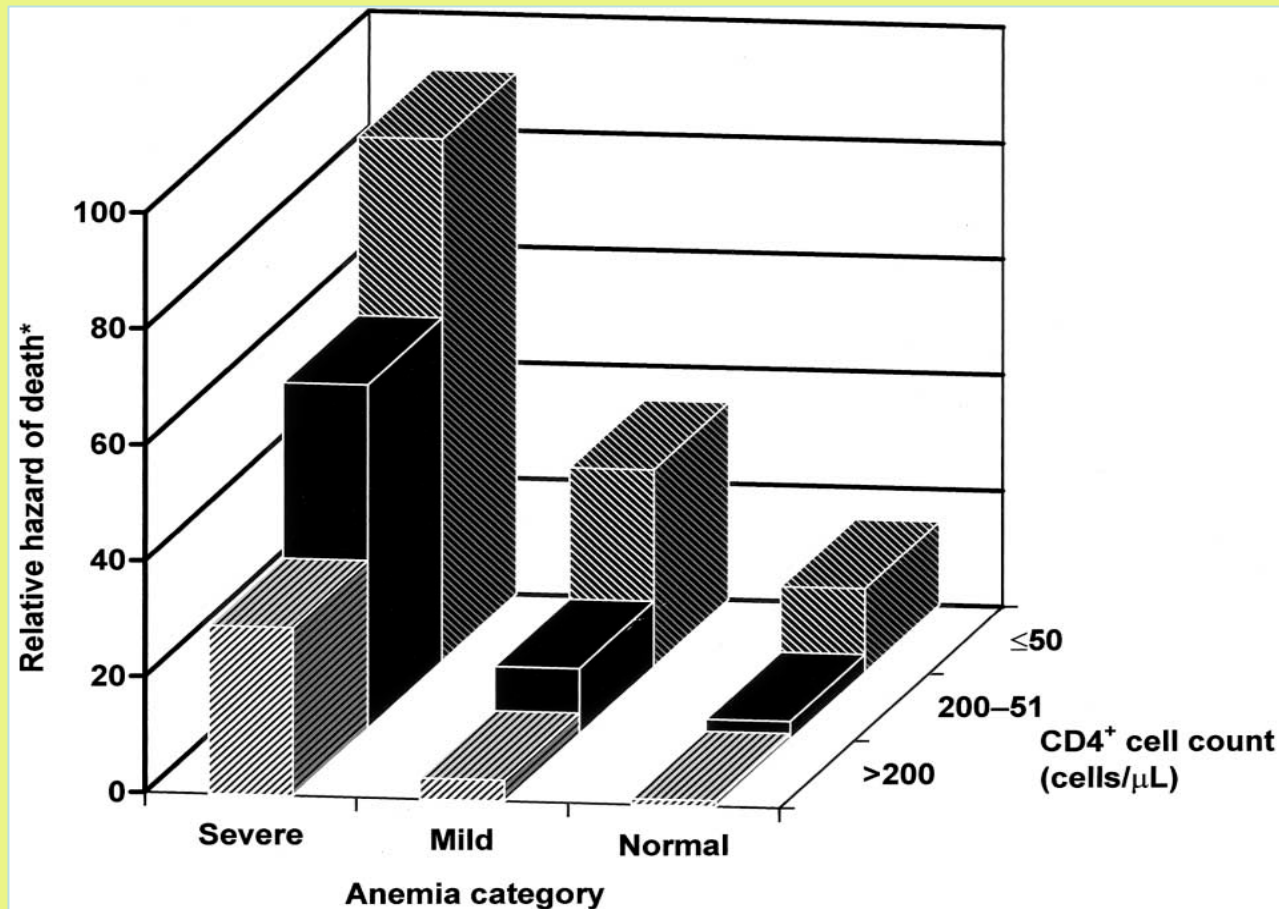
Low BMI (< 18) is associated with increased risk of death in HIV-positive adults independent of immune status *(van der Sande et al, JAIDS, 2004)*



Each unit decrease in BMI ~ with 13% increased risk of death after adjusting for baseline CD4, TB, CTX prophylaxis

Anemia is also a strong predictor of mortality in HIV+ adults

Anemia is an independent predictor of mortality in HIV+ adults -
Mocroft et. al., AIDS, 1999



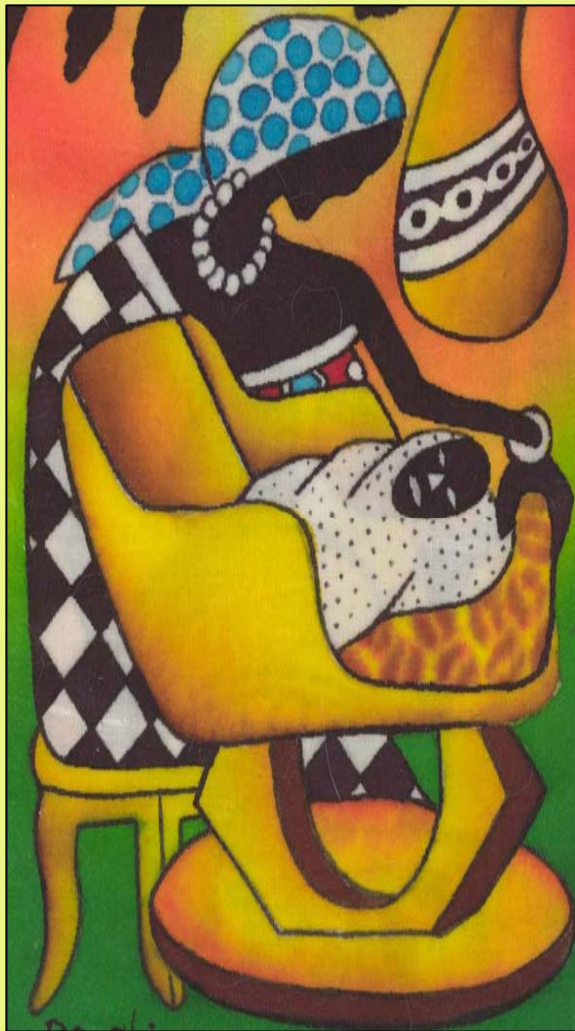
Iron deficiency, the result of diets low in meat and animal source foods, is an important cause of anemia in HIV

Nutritional status of HIV+ and HIV- Ugandan 9 month old infants

	HIV+ (n=165)	HIV- (n=39)	P-value
Birth weight (g) (SD)	3112 g (542)	3165 (684)	0.62
Weight-for-age z-score	-1.73	-1.13	0.01
Weight-for-length z-score	-0.47	0.29	0.0005
Hb < 110 g/L (%)	90.9	76.9	0.015
Anemia due to iron deficiency (%)	44.3	45.4	0.92

Low intakes and deficiencies of several micronutrients have been associated with more rapid disease progression and mortality in HIV+ adults

- These include vitamins A, B₁, B₆, B₁₂, C, E; folate; selenium; zinc (Tang et al, 1993; 1996; Baum et al, 1997; Semba et al, 1994)
- MN requirements for PLWHA are not known (WHO 2003)
 - > 1 RDA may be needed to correct nutritional deficiencies
 - however there is concern that high doses of some nutrients may cause adverse outcomes .
 - recommendation of 1 RDA until more data available
- Public health recommendations for MN supplementation are same for HIV+/HIV- populations
 - Vitamin A supplementation - children
 - Iron-folate - pregnant women
 - Zinc - diarrhea case management



Recommended actions for nutrition in HIV- care

Most common nutrition actions

■ Assessment

- ✓ Nutritional status (weight, height, Hb, MUAC)
- ✓ Food access/availability
- ✓ Household and community support

■ Counseling and care

- ✓ Prevention/preservation of health, body weight
- ✓ Prevention of food and water-borne diseases
- ✓ Symptom-based management
- ✓ Drug interactions/side-effects management




■ Targeted food/nutrition supplements

- ✓ Therapeutic foods for treatment of moderate & severe malnutrition
- ✓ Family assistance (e.g., for OVC)

Goals and objectives for nutrition vary according to HIV-disease progression

- **Asymptomatic**
 - Maintain body weight
 - Build stores/prevent MN deficiencies
 - Food and water hygiene/safety
- **Symptomatic**
 - Nutrition management of HIV-related symptoms and medications
 - Nutritional recovery following acute opportunistic infections
- **AIDS**
 - Nutrition management of ART (if available)
 - Therapeutic feeding (severe malnutrition)
 - Palliative care/comfort

The mix of interventions depends on local circumstances and the individual's disease progression

	HIV+ asymptomatic	 HIV+ symptomatic	 AIDS	 Death
Counseling/care	Nutrition for positive living	Nutrition management of HIV-related opportunistic infections (OI), symptoms, and medications	Nutrition management of ARV therapy (where available) Nutrition management in home-based, palliative care	Counseling on special food and nutritional needs of orphans and vulnerable infants and young children
Targeted food/nutrition supplements	For high risk groups only – e.g., pregnant and lactating women, non-breastfed children	For high risk groups For persons who are losing weight, do not respond to medications Therapeutic feeding for moderately and severely malnourished adults and children	Therapeutic feeding for moderately and severely malnourished adults and children	For high risk OVC groups – e.g., non-breastfed children < 2 yrs, and those with growth faltering
Other uses of food support	Building community food reserves. Food rations to prevent deterioration in highly food insecure areas.	Food rations to improve adherence/participation in OI treatment programs	Food rations to improve adherence/participation in ARV and OI treatment programs Food rations in home-based care programs	Food rations for families where livelihoods are compromised. Food rations to protect the health of orphans and vulnerable children (e.g., school feeding)



Nutritional management of common dietary problems in HIV disease

What does this mean?

- Providing dietary advice to:
 - help manage discomfort, pain
 - maintain food intake during illness
 - increase food intake during recovery
- Based on sound dietary practices & experience more than on "evidence-based" medicine
 - expert opinion

Recommendations for Symptom-Based Nutrition Care and Support

Symptom Nutritional Strategy

Loss of appetite

- Eat small, frequent meals throughout the day (5-6/d)
- Eat nutritious snacks whenever possible - "make every bite count"
- Drink plenty of liquids
- Take walks before mealtime - the fresh air helps to stimulate appetite
- Have family or friends assist with food preparation

Sore mouth and throat

- Avoid citrus fruits, acidic and spicy foods
- Eat foods at room temperature or cold
- Eat soft and moist foods
- Avoid caffeine and alcohol

Recommendations for Symptom-based Nutrition Care and Support (continued)

Symptom	Nutritional Strategy
Nausea and vomiting	<ul style="list-style-type: none">• Eat small, frequent meals (avoid an empty stomach as this makes the nausea worse)• Eat dry bread or toast, and other plain dry foods, preferably in the morning before getting out of bed• Avoid foods with strong or unpleasant odors• Avoid fried foods• Drink plenty of liquids• Rest and relax after and between meals• Avoid lying down immediately after eating (wait for at least 1-2 hours)• Avoid coffee and alcohol

Recommendations for Symptom-Based Nutrition Care and Support (continued)

Symptom	Nutritional Strategy
Diarrhea	<ul style="list-style-type: none">• Eat bananas, mashed fruits, soft white rice, porridge• Eat smaller meals, more often• Eliminate milk and milk products to see if symptoms improve• Avoid intake of fried and high fat foods• Don't eat foods with insoluble fiber ("roughage") - take the skin off fruits and vegetables• Drink plenty of fluids (8-10 cups/day)• Give oral rehydration solution if diarrhea is severe• Avoid very hot or very cold foods (they stimulate the bowels)

If diarrhea is severe, food may be withheld for 24 hrs or restricted to only clear fluids, such as, soups, tea or soft foods
(mashed fruit, potatoes, white rice, porridge)

Recommendations for Symptom-Based Nutrition Care and Support (continued)

Symptom Nutritional Strategy

Fever

- Drink plenty of fluids
- Eat small frequent meals as tolerated
- Add snacks between meals

Altered Taste

- Use a variety of herbs and spices to enhance the flavor of the food
- Try different textures of food
- Chew food well and move around mouth to stimulate receptors

Recommendations for Symptom-Based Nutrition Care and Support (continued)

Symptom Nutritional Strategy

Poor fat absorption

- Eliminate oils, butter, margarine, and foods that contain or were prepared with them
 - Eat lean meats. Trim all visible fat and remove skin from chicken
 - Avoid deep fried, greasy and high fat foods
 - Eat fruit and vegetables and other low-fat foods
-

Fatigue, lethargy

- If possible, have someone pre-cook foods
- Eat fresh fruits that don't require preparation in between meals
- Eat smaller, more frequent meals and snacks throughout the day
- Exercise as able to increase energy
- Try to eat at the same time each day

Regional Centre for Quality of Health Care is developing JOB AIDS for Community and Home-based Care Workers

- Diarrhea
- Nausea/vomiting
- Thrush/oral sores/difficulty or pain swallowing
- Anorexia (loss of appetite)
- Loss of taste and/or dry mouth
- Constipation
- Bloating
- Lack of energy or fatigue
- Fever



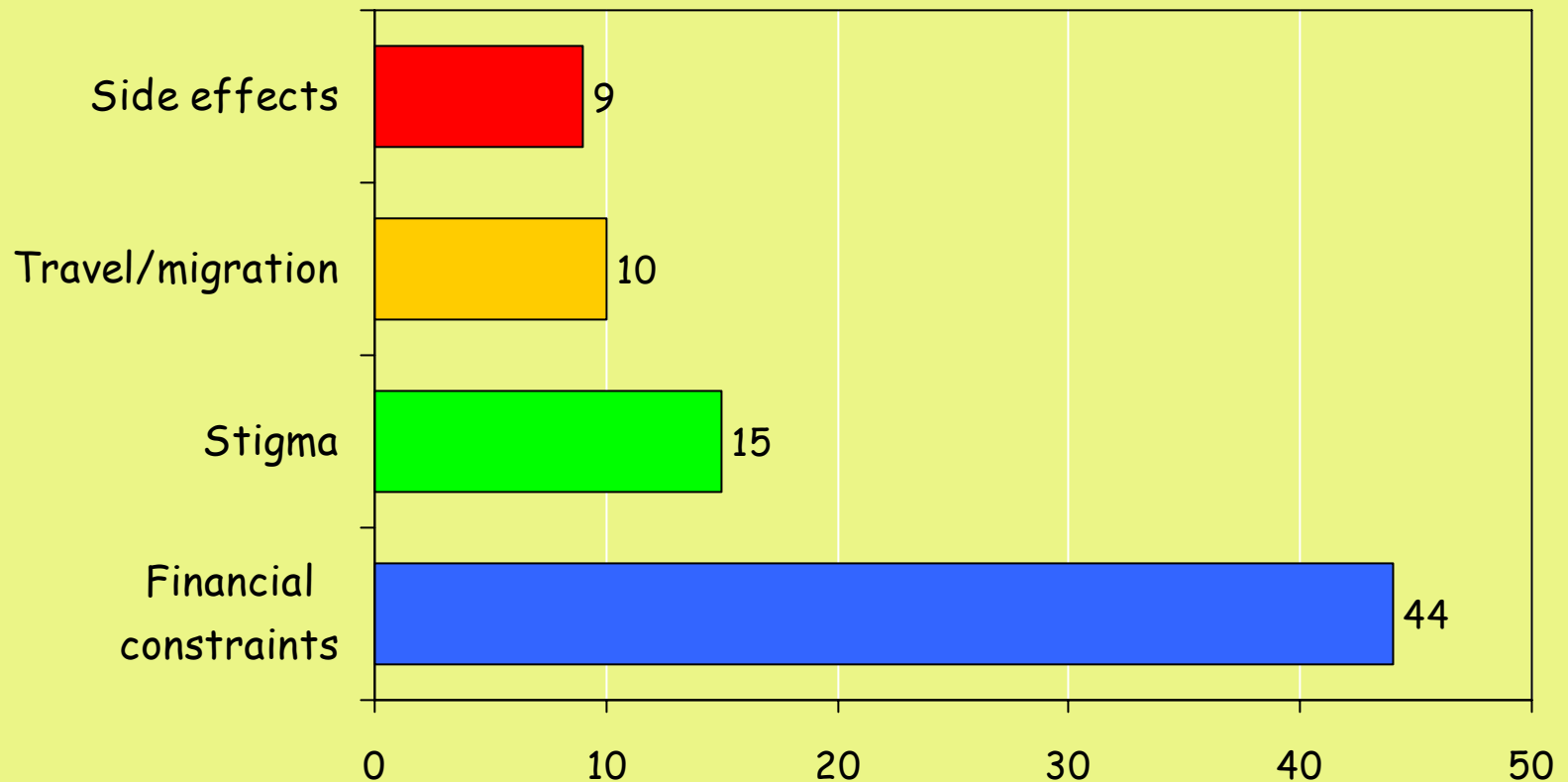
Nutrition and ARV Therapy

Nutrition-related side effects, such as nausea and vomiting may affect adherence to HAART, particularly early in treatment (USA)

Reason	Stopped < =90 d (n=56)	Stopped >90 d (n=184)	Overall (n=240)
Toxicity	35 (62.5)	82 (44.6)	117 (48.8)
-Nausea/Vomiting	14 (25.0)	17 (9.2)	31 (12.9)
-Anemia	10 (17.9)	7 (3.8)	17 (7.1)
-P. Neuropathy	0	17 (9.2)	17 (7.1)
-GI side effects	3 (5.4)	11 (6.0)	14 (5.8)
-Lipodystrophy	0	9 (4.9)	9 (3.8)
Poor adherence/ Virologic Failure	8 (14.3)	46 (25)	54 (22.5)
Financial constraints	2 (3.6)	11 (6.0)	13 (5.4)

Side effects were also a barrier to adherence to ARV therapy in Botswana

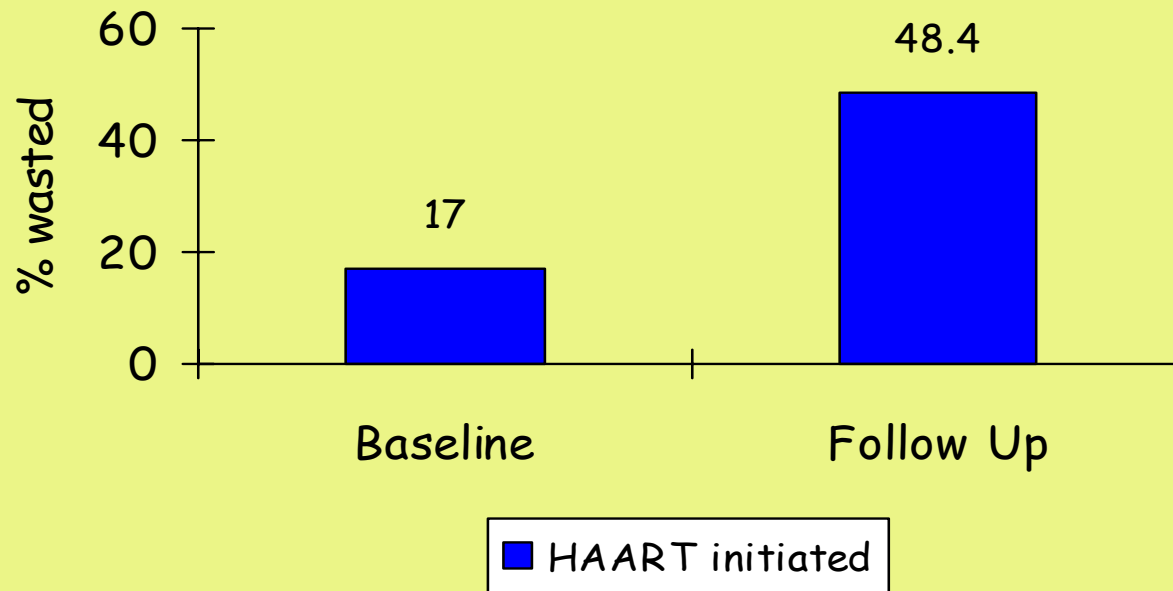
Wieser et al, JAIDS, 2003



Wasting may still be a problem in patients on ARV therapy

Development of wasting in HAART patients - Nutrition for Healthy Living Study

(Wanke et al, 2000)



Weight loss predicts risk of death in patients receiving HAART *Tang, AIDS Reader, 2003*

Loss from Previous Visit (6-mo)	Relative Mortality (95% CI)	P-value
Weight loss	1.11 (1.06-1.17)	0.003
Fat-free mass loss	1.03 (0.97-1.11)	0.34
Body cell mass loss	1.04 (1.00-1.08)	0.10
Fat mass loss	1.02 (1.00-1.03)	0.03

N=552. Models adjusted for CD4, BMI < 20, & HAART use at baseline.

A 3-5% weight loss was associated with 3-fold increase risk of death. NFHL study.

Some ARV regimens increase the risk of metabolic disorders, which require nutritional management

- Metabolic syndrome
 - Subcutaneous fat depletion
 - Visceral fat accumulation
 - Disturbances in fat metabolism
- Causes unknown, may be varied
 - type of drug (e.g. PI)
 - genetic factors
 - disease stage
- **Possible results** – insulin resistance, Type 2 diabetes, increased cardiovascular risks, reduced adherence to therapy (stigma)

Topics to cover when providing nutrition counseling and support to patients receiving ARV treatment

- Management of side effects affecting food intake
 - ✓ Nausea and vomiting may affect adherence (slide)
 - ✓ Management of wasting
- Food-drug interactions
 - ✓ which drugs to take with food, which food/herbs to avoid
- Metabolic complications (depending on regimens)
 - ✓ Body composition, insulin resistance
 - ✓ Long-term health risks
- Prevent misinformation related to therapeutic benefits of food, herbs, and high dose MN supplements

Possible outcomes of providing nutrition counseling, care and support

- Improved quality of life
 - Improved nutritional status
 - Reduction in exposure to food and water-borne infections
 - Better management of HIV-related illnesses and symptoms affecting nutrition
- Increased adherence to ARV treatment
 - Increased efficacy if adherence is improved
- Improved birth outcomes in HIV+ women
 - Reduced fetal death, increased birth weight
- Increased participation in programs
 - Improved quality of care
- Diminished high risk behavior
 - Food support to prevent disruption of families &
 - other high risk interactions to meet basic needs